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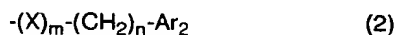
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(54) Polymer fluorescent substance and organic electroluminescence device

(57) A polymeric fluorescent substance having visible fluorescence in a solid state and a polystyrene-reduced number-average molecular weight of  $10^3$  to  $10^7$ , which contains at least one repeating unit represented by the following formula (1),



wherein the sum of the repeating unit is from 10 to 100 mol% of the total number of the repeating units,  $\text{Ar}_1$  represents an arylene group having 4 to 20 carbon atoms taking part in conjugated bonds and containing at least one substituent represented by the following formula (2) as a nuclear substituent, or a heterocyclic compound group, having 4 to 20 carbon atoms taking part in conjugated bonds, and containing at least one substituent represented by the following formula (2) as a nuclear substituent; and  $\text{R}_1$  and  $\text{R}_2$  independently represent a group selected from the group consisting of hydrogen, an alkyl group having 1 to 20 carbon atoms, an aryl group having 6 to 20 carbon atoms, a heterocyclic compound group having 4 to 20 carbon atoms and a cyano group,



wherein  $\text{Ar}_2$  represents a group selected from the group consisting of an aryl group and having 4 to 20 carbon atoms taking part in conjugated bonds, a heterocyclic

compound group, having 4 to 20 carbon atoms taking part in the conjugated bonds, and an aliphatic cyclic hydrocarbon compound group having 6 to 20 carbon atoms constituting the ring; X represents O or S; m represents 0 or 1; and n represents an integer of 2 to 10.

The polymeric fluorescent substance is excellent as a material for organic EL devices because of strong fluorescence and good thermal stability. Furthermore, the devicean organic EL device using the polymeric fluorescent substance can be preferably used as a flat light source for back light or a device such as a flat panel display and the like because it is easily produced and exhibits excellent light emitting characteristics and a heat resistance.

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## EUROPEAN SEARCH REPORT

Application Number  
EP 97 11 4408

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,X	WO 94 20589 A (UNIV CALIFORNIA) 15 September 1994 * page 4, line 1 - line 22 *	1-6	C09K11/06 H05B33/14 C08G61/02
A	VESTWEBER H ET AL: "PROGRESS TOWARDS PROCESSIBLE MATERIALS FOR LIGHT-EMITTING DEVICES USING POLY(P-PHENYLPHENYLENEVINYLENE)" ADVANCED MATERIALS, vol. 4, no. 10, 1 October 1992, pages 661-662, XP000321604 * the whole document *	1-6	
D,A	EP 0 443 861 A (SUMITOMO CHEMICAL CO) 28 August 1991 * the whole document *	1-6	
A	EP 0 725 120 A (SUMITOMO CHEMICAL CO) 7 August 1996 * the whole document *	1-6	
A	EP 0 637 621 A (SUMITOMO CHEMICAL CO) 8 February 1995 * the whole document *	1-6	TECHNICAL FIELDS SEARCHED (Int.Cl.6)  C09K H05B C08G
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>8 June 1998</b>	Examiner <b>Shade, M</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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